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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,057	06/24/2003	Shoji Hinata	9319S-000511	8554
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HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			VU, PHU	
			ART UNIT	PAPER NUMBER
			2871	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/603,057

Applicant(s)

HINATA ET AL.

Examiner

Phu Vu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 14 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7-10, 12, 14-21, 23-33 and 36 is/are rejected.
- 7) ☒ Claim(s) 4, 6, 11, 13, 22, 34 and 35 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 June 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
- Paper No(s)/Mail Date 11/24/03, 8/17/05, 6/30/05 P.V.
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-4 and 6-36 have been considered but are moot in view of the new ground(s) of rejection.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "retarder disposed between the first absorptive polarizer and the electro-optical panel" found in claim 31 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

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the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7 and 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 7, applicant has amended base claim 3 to remove the limitation of the second polarizer being an absorptive polarizer while claim 7 recites that it is reflective. This falls outside of the scope set forth by claim 3 therefore the second polarized light selecting unit read as absorptive.

Regarding claim 30, applicant has failed to show the retarder (element 130 or 230) being between the first absorptive polarizer and the liquid crystal panel in the specification. The first absorptive polarizer is on a side of the electro-optic panel opposite the reflective polarizer and transmits a third polarized light. Applicant has shown the retarder between the first reflective polarizer and the electro-optic layer and also between the second absorptive polarizer and electro-optic panel. For examining purposes this limitation will be treated as between the first reflective polarizer and the electro-optic panel.

Claim Rejections - 35 USC § 102

DETAILED ACTION

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-3, 7-8, 10, 12, 14, 18, 23-33 are rejected under 35 U.S.C. 102(e) as being anticipated by Kaneko et al US 6525707.

Regarding claims 1- 2, and 26-27, Kaneko teaches a display device comprising: a display unit adapted to allow a first polarized light to be emitted as a display light; the display unit includes: a first polarized light selecting unit (fig. 21 element 65) on a viewing side thereof, the first polarized light selecting unit transmitting the first polarized light and reflecting a second polarized light having a polarization axis cross a polarization axis of the first polarized light, a transmitting polarization axis varying unit (fig. 21 element 60), a second polarized light selecting unit (fig. 21 element

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8) disposed between the first polarized light selecting unit and the transmitting polarized, the second polarized light selecting unit transmitting the first polarized light and absorbing the second polarized light; and a third polarized (fig. 21 element 9) light selecting unit disposed on a backside of the transmitting polarization axis varying unit, the third polarized light selecting unit transmits a third polarized light and absorbs a fourth polarized light having a polarization axis crossing a polarization axis of the third polarized light. The limitation of a control unit "a control unit adapted to control the display unit" and "wherein the control unit switches between a display mode, in which the first polarized light is emitted from the display unit as display light, and a mirror mode in which the first polarized light is not emitted from the display unit and wherein the transmitting polarization axis varying unit converts at least a part of the third polarized light to the first polarized light" is not limiting. Also this limitation appears to be a product-by-process limitation. The MPEP section 2113[R-1] states "Product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps." At most the step of emitting or not emitting a first polarized light would limit the structure to perhaps a power source that drives the backlight unit capable of being turned on and off which also serves as the input part (as per claim 27) to "allow switching between the transmissive display mode and the mirror mode." The step of "wherein the transmitting polarization axis converts at least a part of the third polarized light to the first polarized light" does not limit the structure of the polarization axis-varying unit as applicant has admitted that this is liquid crystal display (ie claim 35) and the limitation of converting a first to third is claiming 1 possible

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orientation state. However, this limitation is dependent on how the electrodes are biased and thus is a product-by-process limitation and a liquid crystal display of the reference thus meets this limitation. **Regarding claim 26**, claim 26 is identical to claim 1 except the "limitation of light is emitted from the polarized light selecting unit" where polarized light selecting unit replaces "display unit" in claim 1. However the polarized light selecting unit is not a light source therefore, cannot "emit" light. Therefore, this limitation is read as the display unit does not display light.

Regarding claims 3 and 7, Kaneko teaches a display device having a transmitting polarization axis varying unit (fig. 21 element 60), the display device including: a first polarized light selecting unit (65) disposed on a viewing side of the transmitting polarization axis varying unit, and a second polarized light selecting unit disposed on a backside of the transmitting polarization axis varying unit, wherein the first polarized light selecting unit transmits a first polarized light and reflects a second polarized light having a polarization axis crossing a polarization axis of the first polarized light (element 65 is a reflective polarizer), the second polarized light selecting unit transmits a third polarized light and absorbs a fourth polarized light having a polarization axis crossing a polarization axis of the third polarized light (element 8 is an absorptive polarizer) and the transmitting polarization axis varying unit converts at least a part of the third polarized light to the first polarized light, wherein the third polarized light selecting unit adapted to transmit the first polarized light and to absorb the second polarized light is disposed between the first polarized light selecting unit and the transmitting polarization axis varying unit.

Regarding claim 8, Kaneko teaches a surface on the viewing side of the polarized light-selecting unit is flat (see fig. 21 element 65).

Regarding claim 10, Kaneko teaches a lighting unit adapted to emit light to the viewing side is disposed on the backside of the second polarized light selecting unit (see fig. 21 element 19).

Regarding claim 12, the limitation of the transmitting polarization axis varying unit does not emit the first polarized light when the lighting unit is off is inherent as the transmitting polarization axis varying unit will not emit light when a lighting unit is off.

Regarding claim 14, the limitation of "light emitted in a normal direction is greatest in an emission angle ..." does not impose any limitation since there is no angle specified. Thus this limitation is met by the reference.

Regarding claim 18, Kaneko teaches a retarder is disposed between the first polarized light selecting unit and the transmitting polarization axis-varying unit (column 2 lines 20-25).

Regarding claim 23, Kaneko's LCD is an electronic device.

Regarding claim 24, Kaneko teaches a display drive unit to drive the transmitting polarization axis-varying unit (see abstract).

Regarding claim 25, Kaneko teaches a display drive unit to drive the transmitting polarization axis-varying unit (see abstract) and a lighting control unit to control the lighting unit (see claim 1 rejection).

Regarding claim 28, Kaneko teaches a display device comprising: an electro-optical panel (60); a first absorption polarizer (fig. 21 element 9) on one side of the

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electro-optical panel; a reflective polarizer (65) on the other side of the electro-optical panel; and a second absorption polarizer (8) disposed between the reflective polarizer and the electro-optical panel, wherein the reflective polarizer on the other side of the reflective polarizer and the electro-optical panel; the limitation of wherein the reflective polarizer transmits a first polarized light and reflects a second polarized light that has a polarization axis that crosses a polarization axis of the first polarized light is inherent to a reflective polarizer and the limitation of the second absorption type polarizer transmits the first polarized light and absorbs the second polarized light is inherent to a absorptive polarizer; the first absorption type polarizer transmits a third polarized light and absorbs a fourth polarized light having a polarization axis crossing a polarization axis of the third polarized light; The limitation of the electro-optic panel converts part of the third polarized light to the first polarized light does not limit the claim structurally other than having a transmission polarization axis varying unit/electro-optical panel as this is a product by process limitation.

Regarding claim 29 and 30, Kaneko teaches a retarder located between the second absorptive polarizer and the electro-optical panel (see column 2 lines 20-25). A retarder placed on the viewing side of the electro-optical panel would place it between the second absorptive polarizer and the electro-optical panel and between the first reflective polarizer and the electro-optical panel.

Regarding claim 31, Kaneko teaches the reflective polarizer (fig. 21 element 65) disposed farther from the electro-optical panel than the first absorptive polarizer (see fig. 21 element 9).

Regarding claim 32, Kaneko teaches the light source (fig. 21 element 19) disposed farther from the electro-optical panel than the first absorptive polarizer (see fig. 21 element 9).

Regarding claim 33, Kaneko teaches the reflective polarizer (fig. 21 element 65) is the outermost polarizer at the side of the electro-optical panel to which the second absorption polarizer (fig. 21 element 8) and the reflective polarizer are disposed.

Claims 15-16 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneko in view of Higuchi US 6222689.

Regarding claims 15-16, Kaneko fails to teach the luminous light is mainly distributed at an emission angle ranging from 0 to 40 degrees and wherein the luminous light is $1/50^{\text{th}}$ or below a light amount in the normal direction for a range exceeding an emission angle of 45 degrees. Higuchi teaches a luminous light distributed mainly from 0 to 40 degrees and wherein the luminosity is $1/50^{\text{th}}$ or below beyond 45 degrees (fig. 13) to reduce deterioration such as bright and dark patterns or coloring and provide for a display with excellent brightness and visibility (see column 4 line 50-52). Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to provide luminous light is mainly distributed at an emission angle ranging from 0 to 40 degrees and wherein the luminous light is $1/50^{\text{th}}$ or below a light amount in the normal direction for a range exceeding an emission angle of 45 degree to reduce deterioration such as bright and dark patterns or coloring and provide for a display with excellent brightness and visibility.

Regarding claim 36, Kaneko teaches a display device comprising: a display unit adapted to allow a first polarized light to be emitted as a display light; the display unit includes: a first polarized light selecting unit (fig. 21 element 65) on a viewing side thereof, the first polarized light selecting unit transmitting the first polarized light and reflecting a second polarized light having a polarization axis cross a polarization axis of the first polarized light, a transmitting polarization axis varying unit (fig. 21 element 60), a second polarized light selecting unit (fig. 21 element 8) disposed between the first polarized light selecting unit and the transmitting polarized, the second polarized light selecting unit transmitting the first polarized light and absorbing the second polarized light; and a third polarized (fig. 21 element 9) light selecting unit disposed on a backside of the transmitting polarization axis varying unit, the third polarized light selecting unit transmits a third polarized light and absorbs a fourth polarized light having a polarization axis crossing a polarization axis of the third polarized light. The limitation of the display switching between a display mode, wherein light is emitted from the transmitting polarization axis varying unit and a mirror mode in which the lighting unit is set in an off state are product by process limitations (see claim 1 rejection). Kaneko fails to teach an emission angle distribution of luminous light is greatest in a direction orthogonal to the display screen. Higuchi teaches an emission angle distribution of luminous light is greatest in a direction orthogonal to the display screen (fig. 13) to reduce deterioration such as bright and dark patterns or coloring and provide for a display with excellent brightness and visibility (see column 4 line 50-52). Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to reduce

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deterioration such as bright and dark patterns or coloring and provide for a display with excellent brightness and visibility.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneko in view of Miyake et al US 4902103.

Regarding claim 17, Kaneko discloses all the limitations of claim 17 except a color filter disposed on the backside of the first polarized light-selecting unit. Miyake teaches color filters disposed between the substrates of a liquid crystal display (see fig. 1b elements 6R, 6G, and 6B which places it on a backside of the polarized light selecting unit) to realize a color display (see column 1 lines 55-56). Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply color filters to realize a liquid crystal display

Claims 9, 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneko in view of Kusuda US 6559902.

Regarding claims 9, 19 and 21, Kaneko discloses all the limitation of claims 9, 19, and 21 except a protective member formed on a surface of the viewing side of the first polarized light-selecting unit, the first polarized light selecting unit is directly or indirectly disposed adjacent the a flat transparent member. Kusuda teaches a flat transparent hold plate (fig. 1 element 5) that protects a panel due to superior rigidity (see column 1 lines 20-27) and is transparent to allow light to pass. Therefore, a the time of the invention it would have been obvious to one of ordinary skill in the art to provide flat transparent hold plate to protect a panel and allow light to pass.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneko in view of Kusuda in view of Suzuki US 6573957.

Regarding claim 20, Kaneko and Kusada disclose all the limitations of claim 22 except the polarized light selecting unit is bonded to the transparent member by a transparent substance. Suzuki teaches a transparent adhesives as being well-known ie. conventional in the art to bond members in an LCD (see column 12 lines 15-20). Conventionality has associative benefits such as ready availability and a well-documented implementation and usage. Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to provide a transparent adhesive since they are readily available.

Allowable Subject Matter

Claims 4, 6, 11, 13, 22 and 34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

There is no prior art of record that teaches a liquid crystal display with a structure of a first, second and third polarized light selecting unit. The first disposed on the viewing side of a transmitting polarization axis-varying unit (TPAVU ie liquid crystal cell) and transmits a first light and reflects a second polarized light. The second disposed on a backside (non-viewing side) of the TPAVU that transmits a third polarized light and absorbs a fourth, and the third disposed between the first polarized light selecting unit and the TPAVU that transmits the first polarized light and absorbs a second polarized light wherein:

Regarding claims 4 and 34-35, no other TPAVU is disposed on the viewing side of the first polarized light selecting unit. The prior art discloses a TPAVU on the viewing side of the first polarized light selecting unit and removing the all the elements of the TPAVU without removing the reflective polarizer would not be obvious.

Regarding claim 6, a fourth polarized light selecting unit disposed between the second polarized light selecting unit and the lighting device. Prior art discloses first 3 polarizers and adding a fourth in this position in combination with a structure of Kaneko distinguishes over the prior art.

Regarding claim 11, wherein no light reflection component for reflecting outside light of the viewing side in a form supporting display is disposed between the first polarized light selecting unit and the lighting unit. The prior art teaches a transflector disposed in this area.

Regarding claim 13, there is no prior art of record that teaches a polarized light selecting area of the first polarized light-selecting unit extends beyond an area overlapping a transmitting polarization axis varying area of the transmitting portion.

Regarding claim 22, there is no prior art of record that teaches a curved surface of the viewing side of the transparent member. Applicant discloses this acts like a "lens" and while this is not apparently novel this limitation requires removing the top TPAVU as per claims 4 and 34.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phu Vu whose telephone number is (571)-272-1562. The examiner can normally be reached on 8AM-5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571)-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Phu Vu
Examiner
AU 2871


ANDREW SCHECHTER
PRIMARY EXAMINER